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ON
THE GRAPTOLITES
FROM
THE SILURIAN SHALES OF DUMFRIESSHIRE,
WITH
A DESCRIPTION OF THREE NEW SPECIES.

BY

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At the meeting of the British Association held at Edinburgh in July 1850, Prof. M'Coy read a list of the then known Graptolites of the south of Scotland. They amounted to fourteen species. My examination of the Graptolitic shales has been chiefly confined to those which occur in Dumfriesshire. In this district the following Graptolites, amounting to twenty-four species, have been found :—

Rastrites peregrinus, *Barr.* Bran Burn, Dobb's Linn.
—— triangulatus, *Hark.*

This is a remarkably abundant fossil at Garple Linn. Having examined a large number of specimens from this locality, and been unable to discover anything approaching the form of G. *Sedgwickii*, I am satisfied that this is a distinct species, and have consequently inserted it in this list.

Graptolites sagittarius, *Lam.* Lockerbie.
—— tenuis, *Portl.* Lockerbie, Dobb's Linn.

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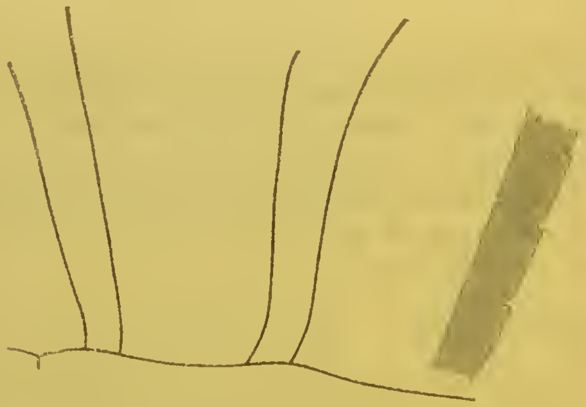
* Read before the Royal Physical Society of Edinburgh, April 28, 1858.

Graptolites convolutus, *His.* Lockerbie.
—— Sedgwickii, *Portl.* Duff Kinnel, Dobb's Linn.
—— millipeda, *M'Coy.* Lockerbie.
—— lobiferus, *M'Coy.* Lockerbie.
—— Nilssoni, *Barr.* Bran Burn, Garple.
—— Nicoli, *Harkn.* Beld Craig, Glen Kiln.
—— Becki, *Barr.* Beld Craig.
Cladograpsus linearis, nov. sp. Hartfell.
Diplograpsus rectangularis, *M'Coy.* Dobb's Linn, Hartfell, Lockerbie.
—— foliaceus, *Murch.* Hartfell, Dobb's Linn.
—— folium, *His.* Dobb's Linn, Bran Burn, Hartfell.
—— mucronatus, *Hall.* Hartfell.
—— nodosus, *Harkn.* Bran Burn.
—— pennatus, *Harkn.* Duff Kinnel.
—— teretiusculus, *Harkn.* Glen Kiln.
—— bicornis, *Hall.* Hartfell.
—— tricornis, nov. sp. Hartfell.
Didymograpsus sextans, *Hall.* Hartfell.
—— ramosus, *Hall.* Hartfell.
—— Moffatensis, nov. sp. Hartfell.

Cladograpsus linearis.

Fragments of this fossil are frequently mingled with the *Diplograpsus foliaceus* at Hartfell. It may have been before noticed, and probably referred to some known species as a variety. Having obtained in this locality a number of specimens in a thin bed, where it occurred in great abundance and almost alone, I am able to describe it as a distinct species.

From a short and very slender base the zoophyte divides into two stems, each supporting the cells on their upper sides.



Branches are given off at irregular distances from these principal stems. The length of the polypidom has been very great: one specimen I have been able to trace for nearly three feet. The polypidom has been formed of a flexible substance; for they are seldom found in straight lines, but generally in curves, or bent, without breaking, on themselves. The appearance of this zoo-

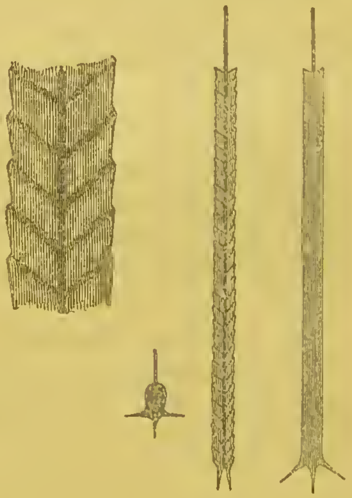
R38323

phyte in its living state—its long graceful stem yielding to the motion of the water, and its crown of tentacles occupying every cell, which were sufficiently removed to exhibit their individuality—must have been very beautiful.

The polypidom at its origin, near to the slender base, is very narrow, being little more than a fine line; as it increases in length it increases in breadth, until it is fully two-fifths of a line broad. The cells are very remote from each other, and are, at first sight, from the slight indentation they make in the stem, scarcely perceptible, giving the Graptolite the appearance as if it were a clear line. The mouth of the cell is straight and at right angles to the axis; it makes an indentation equal to about one-sixth of the breadth of the polypidom. The number of cells in an inch is about eighteen.

Diplograpsus tricornis.

This species can be readily distinguished by the three spines which adorn its base, and which are almost always preserved. The central spine is a continuation of the line of the axis; it is shorter than the lateral ones. They generally form a more or less acute angle with it, and are never farther removed than to form a right angle; occasionally they assume a graceful curve. The polypidom is more slender than in *D. foliaceus*, which in general outline it somewhat resembles. The axis is slender, and produced beyond the other parts of the fossil. The cell-walls are well marked, extending upwards from the axis to the boundary of the fossil. Each cell forms a rhomb whose outer border is slightly indented, giving the boundary of the fossil a faintly serrated aspect. When the fossil is preserved so as to show the serratures, the spines are so compressed that the central one is almost or altogether lost. When the spines are well preserved and in the position described, no traces of the individual cells are discoverable; the boundary of the fossil is an unbroken line*.



This species is abundant in a thin bed at Hartfell.

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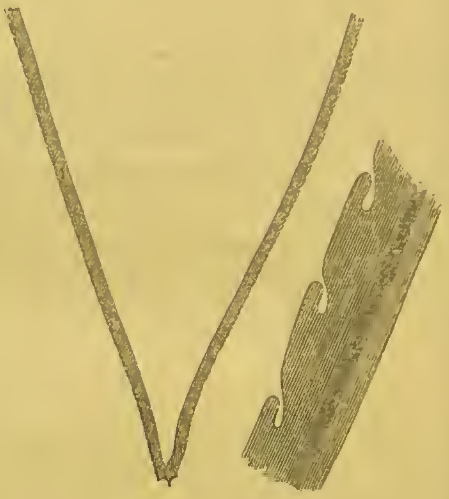
* The length of the polypidom is more variable in this Graptolite than in any other I have gathered. A young form, as represented in the figure, is not uncommon.

Didymograpsus Moffatensis.

This is the most elegant of the British species of this genus. The base terminates in three distinct spinous processes. The zoophyte bifurcates from the base. The general appearance is like the figure; or occasionally the lines form an acute angle for about a quarter of an inch, then suddenly expanding in slight curves, almost at right angles, for a short distance, when it again recurs to its original direction. The branches are united for about a quarter of a line by a slight web, which in some specimens is terminated in a fine process of short length, taking the direction of a line bisecting the angle. The cells are arranged on the outer margins; they are very remote, and penetrate the polypidom to scarcely one-fourth of its breadth; they form slight openings on the margin of the polypidom, first entering at a right angle, and then suddenly turning downwards. These openings are lengthened ovate pouches, answering exactly in shape and size to the cell-serratures of the margin. The number of cells in an inch is about twenty. The breadth of the polypidom is about two-thirds of a line.



This species is found in the shales at Hartfell.

The specific name is derived from the locality where it is found, which is in the neighbourhood of Moffat.